

CLAIMS

We claim:

- Sub A. 1. A method for a network switch, the method comprising:
- 2 counting statistics for a plurality of connections; ✓
 - 3 determining if a count value for each of the connections is above a
 - 4 threshold; and
 - 5 collecting statistics for the connections having a count value above the
 - 6 threshold before connections having a count value below the threshold.
- 1 2. The method of claim 1, wherein the threshold is a percentage of a
- 2 maximum count value.
- 1 3. The method of claim 1, wherein determining if the count value for each of
- 2 the connections is above the threshold includes:
- 3 sending an interrupt signal for each connection having a determined
- 4 count value above the threshold.
- 1 4. The method of claim 3, wherein collecting statistics for the connections
- 2 includes:
- 3 collecting statistics for connections with corresponding interrupt signals
- 4 before other connections with no corresponding interrupt signals.

Sub A' 7

- 1 5. The method of claim 3, wherein sending an interrupt signal includes:
2 placing a logical connection identifier for each statistic having an
3 associated count value above the threshold in a first-in-first-out (FIFO) buffer.
- 1 6. The method of claim 5, wherein collecting statistics for connections
2 includes:
3 reading statistics in a memory based on the logical connection identifiers
4 stored in the FIFO buffer.
- 1 7. An apparatus comprising:
2 one or more counters, each counter to count statistics for a connection; and
3 a processor to determine if a count value for each of the counters is above
4 a threshold and to collect statistics from counters having a count value above the
5 threshold before counters having a count value below the threshold.
- 1 8. The apparatus of claim 7, wherein the threshold is a percentage of a
2 maximum count value.
- 1 9. The apparatus of claim 7, wherein each counter is to send an interrupt
2 signal for a respective connection having a determined count value above the
3 threshold.

Sub A⁷

1 10. The apparatus of claim 9, wherein the processor is to collect statistics for
2 counters having corresponding interrupt signals before other counters with no
3 corresponding interrupt signals.

1 11. The apparatus of claim 9, further comprising:
2 a first-in-first-out (FIFO) buffer to store logical connection identifiers, each
3 logical connection identifier to be used to collect high priority statistics.

1 12. The apparatus of claim 11, further comprising:
2 a memory to store statistics, wherein the processor is to read high priority
3 statistics in the memory based on the logical connection identifiers stored in the
4 FIFO buffer.

1 13. A network interface comprising:
2 a memory to store statistics for a connection;
3 one or more counters, each counter to count statistics stored in the
4 memory;
5 a processor to determine if a count value for each of the counters is above
6 a threshold and to collect statistics stored in the memory derived from counters
7 having a count value above the threshold before collecting statistics in the
8 memory derived from counters having a count value below the threshold.

Sub A' 7

1 14. The network interface of claim 13, wherein the threshold is a percentage of
2 a maximum count value.

1 15. The network interface of claim 13, wherein each counter is to send an
2 interrupt signal for a respective connection having a determined count value
3 above the threshold.

1 16. The network interface claim 15, wherein the processor is to collect
2 statistics for counters with corresponding sent interrupt signals before other
3 counters with no interrupt signals.

1 17. The network interface of claim 15, further comprising:
2 a first-in-first-out (FIFO) buffer to store logical connection identifiers, each
3 logical connection identifier to be used to collect high priority statistics.

1 18. The network interface of claim 17, further comprising:
2 a memory to store statistics, wherein the processor is to read high priority
3 statistics in the memory based on the logical connection identifiers in the FIFO
4 buffer.

Sub A 7

1 19. The network interface of claim 13, further comprising:
2 one or more ports, each port receiving or forwarding traffic cells.

1 20. The network interface of claim 19, wherein the one or more ports are
2 optical carrier (OC) ports, synchronous transport system (STS) ports, or
3 synchronous digital hierarchy (SDH) ports.

1 21. An apparatus comprising:
2 means for counting statistics for a plurality of connections;
3 means for determining if a count value for each of the connections is
4 greater than or equal to a threshold; and
5 means for collecting statistics for the connections having a count value
6 greater than or equal to the threshold before connections having a count value
7 below the threshold.

1 22. The apparatus of claim 21, wherein the threshold is a percentage of a
2 maximum count value.

1 23. The apparatus of claim 21, further comprising:
2 means for sending an interrupt signal for each connection having a
3 determined count value greater than or equal to the threshold.

Sub A' 7

1 24. The apparatus of claim 23, wherein the means for collecting statistics
2 collects statistics for connections with corresponding interrupt signals before
3 other connections with no corresponding interrupt signals.

1 25. The apparatus of claim 23, further comprising:
2 means for placing a logical connection identifier for each statistic having
3 an associated count value above the threshold in a first-in-first-out (FIFO) buffer.

1 26. The apparatus of claim 25,
2 means for reading statistics in a memory based on the logical connection
3 identifiers stored in the FIFO buffer.

1 27. A statistics collection module comprising:
2 a memory to store statistics for a connection;
3 one or more module counters, each module counter to count statistics
4 stored in the memory;
5 a central processing unit (CPU) having internal CPU counters to count
6 values from the one or more module counters, the CPU to determine if a count
7 value for each of the module counters is greater than or equal to a threshold and
8 to collect statistics stored in the memory derived from the module counters
9 having a count value that is greater than or equal to the threshold before

5a9(A) 7
10 collecting statistics in the memory derived from the module counters having a
11 count value below the threshold.

1 28. The statistics collection module of claim 27, wherein the internal CPU
2 counters are wider than the one or more module counters.

1 29. The statistics collection module of claim 28, wherein the internal CPU
2 counters are 64-bit counters and the one or more module counters are 32-bit
3 counters.